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mound, by the Curator, Mr. David Boyle. A photographic illustration and a plan are added. There is no doubt of its artificial origin and religious character, and it even resembles the Ohio serpent mound in the presence of the 'egg' in front of the serpent's head. Efforts will be made to preserve it. A number of other mounds and some graves are described, and a variety of noteworthy specimens acquired by the Museum are mentioned and illustrated. At the close of the report (which covers 117 pages) is a useful bibliography of the archæology of Ontario, prepared by Mr. A. F. Hunter.

D. G. BRINTON.

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NOTES ON INORGANIC CHEMISTRY.

THE last number of the Proceedings of the Chemical Society contains the abstract of a paper by W. N. Hartley and H. Ramage on the wide dissemination of some of the rarer elements. A large number of ores and minerals were examined by means of spectrographic analysis. Most notable is the wide distribution of gallium, which was found in 68 out of 168 specimens, occurring in most magnetites, bauxites and blendes, and nearly half the clay ironstones and manganese ores. Rubidium appears to be even more widely distributed, occurring in most iron ores. Indium was found in thirty minerals, including all the carbonates of iron and tin ores and most blendes. Thallium, while less widespread, was frequently found. Iron and sodium were found in every specimen and potassium in all but two, one a blende and the other a tin ore. Calcium, copper and silver were found in all but a few cases. Such a wide dissemination of gallium and indium is unexpected, and the same might be said of silver. Among metals not looked for by the authors, titanium is known to be found almost universally, and possibly the same is true of gold.

AN interesting class of substances has been discovered by Professor Wm. L. Dudley, of Vanderbilt, formed by the action of fused sodium dioxid on metals. The one most carefully studied is a hydrated oxid of nickel, of the formula $\text{Ni}_3\text{O}_4 \cdot 2\text{H}_2\text{O}$. It is formed by heating nickel with sodium dioxid in a nickel crucible to a cherry red. The surface of the fusion soon becomes covered with scaly crystals, which, after cooling and washing, possess the composition given. They are lustrous, almost black, apparently hexagonal plates, soft and somewhat resembling graphite. They begin to lose water at 140° , and thus present the curious but not unique phenomenon of a substance containing water, formed at a high temperature and losing its water at a much lower temperature. Other metals appear to form similar compounds, but their study is not easy, since fused sodium dioxid attacks crucibles of porcelain, iron, silver, gold or platinum.

BEFORE the Edinburgh University Chemical Society on January 25th a paper was read by Dr. Dobbin on 'Who introduced the use of the balance into chemistry?' After quoting from text-books many statements which attribute to Lavoisier the discovery of the law of conservation of energy, and the first employment of the balance in investigating theoretical questions in chemistry, the author showed that every step of Black's classic investigation on 'Magnesia Alba' was made good by appeal to direct quantitative experiments. Boyle also made frequent use of the quantitative method of experiment. The earliest attempt to determine the accuracy of a view by appeal to quantitative experiment was, according to Dr. Dobbin, that of Van Helmont in his well-known experiment upon the supposed formation from water only, of 164 pounds weight of the substance of a willow tree, the weight of the earth in which this willow grew having varied by only about two

ounces in five years. Van Helmont's work was most probably the inspiration of that of Boyle, and Lavoisier is well known to have been an attentive student of the works of the latter. Thus must we trace the evolution of the 'Father of Chemistry!'

J. L. H.

SCIENTIFIC NOTES AND NEWS.

VERTEBRATES FROM THE KANSAS PERMIAN.

VERY recently I have received from Cowley County, Kansas, a number of fossil bones obtained in an excavation for a well, which are of considerable stratigraphic interest. They are from near the base of the Permian, as defined by Professor Prosser, who is our authority on the stratigraphy of the Kansas Permian. Two of the animals represented by the remains are indistinguishable, so far as the descriptions show, from *Cricotus heteroclitus* and *Clepsydrops collettii*, described by Cope from the Permian of Illinois; with them, also, are numerous teeth, similar to or identical with an Illinois species of *Didymodus*.

That species of vertebrate animals are good 'Leitfossilien,' there can be no question, thus proving the contemporaneity of the Illinois and Kansas deposits. Furthermore, all of these genera are represented by closely allied forms from the Permian beds in Texas, which would therefore seem to be of earlier rather than later Permian time. Above the strata which yield these remains in Kansas there are two or three hundred feet of shales and limestones underlying, whether conformably or not is not known, not far from one thousand feet of deposits known as the 'red beds.' That these red beds are not contemporaneous with the Texas Permian would seem assured, and I feel yet more confident that they are, what they were first considered to be, of Triassic age.

S. W. WILLISTON.

A NEW BOTANICAL LABORATORY IN THE AMERICAN TROPICS.

A MOVEMENT for the establishment of a botanical laboratory in the American tropics which should be international in its organiza-

tion and benefits had made such progress in the way of securing substantial support that the writer at the suggestion of the editors of the *Botanical Gazette*, on January 1, 1897, began to organize a commission for the selection of a location for the proposed laboratory, and to ascertain how far the moral support and active cooperation of American and British botanists might be enlisted.

The organization of the commission has proceeded with such facility that the American membership is now complete, with the following representation:

Professor Douglas Campbell, Stanford University.

Professor J. M. Coulter, University of Chicago.

Professor W. G. Farlow, Harvard University.

Professor D. T. MacDougal, University of Minnesota.

It is proper to say that the entire movement has received the support of almost every active botanical center engaged in work which would be benefited by the opportunities afforded by a tropical station—a unanimity that points to a speedy establishment of the proposed laboratory.

Preliminary to the beginning of actual field work, advices have been secured concerning the regions which should receive the attention of the commission, from botanists in Germany, England and America, inclusive of the gentlemen in charge of the various tropical and sub-tropical stations now in existence. The suggestions made include the Pacific Coast from California to Peru, the Gulf Coast from Galveston to Panama and from Florida to Venezuela.

Data concerning the climatic conditions, flora and transportation facilities are being accumulated, and the commission will be able to select the region best adapted for the purposes of the laboratory before starting on its tour of inspection. The work of the commission in the field will consist in the selection of a site offering the most highly advantageous grouping of local conditions. The presence of a body of undisturbed tropical vegetation, easily accessible from a site, conveniently placed with reference to towns or settlements, or other base of supplies, as well as direct and easy connection with a marine sub-station, will be the more essential features.